AMENDMENTS TO THE CLAIMS

1. (Amended) A communications link for a cellular communications system, comprising:

a first airplane for flying in a first pattern and including a first antenna for transmitting RF beams to form a first footprint on a first target geographic area to provide cellular phone users within the footprint with a first communications link said second footprint at least partially overlapping said first footprint;

a second airplane for flying in a second pattern and including a second antenna for transmitting RF beams to form a second footprint on a second target geographic area to provide cellular phone users within the second footprint with a second communications link;

said first and second airplane flying in the first and second patterns each at an altitude below a high altitude level;

said first and second patterns being varied to enable the first and second airplane to provide continuous uninterrupted coverage via first and second beam patterns, respectively, to a service area below in a weather pattern-independent and geographic feature-independent manner.

2. (Original) The communications link of claim 1, further comprising a first airport located away from a center of a coverage area of the first and second airplane corresponding to a glide-down distance of the first and second airplane.

3. (Original) The communications link of claim 2, further comprising a second airport for providing services generally redundant to those at the first airport, the second airport being situated at a location that is accessible to the first and second airplane.

4. (Original) The communications link of claim 3, further comprising a third airplane located at one of the first and second airports for providing coverage redundant to that of the first and second airplanes.

5. (Original) The communications link of claim 1, wherein the first and second airplanes comprise a first airborne coverage group, and further comprising at least one other airborne coverage group for providing services generally redundant to those of the first airborne coverage group.

6. (Original) The communications link of claim 1, wherein the first and second airplanes fly at the same altitude.

7. (Original) The communications link of claim 1, wherein the first and second airplanes fly at different altitudes.

8. (Original) The communications link of claim 1, wherein altitudes of the first and second airplanes vary according to link margin requirements.

9. (Original) The communications link of claim 1, wherein the respective first and second patterns of the first and second airplanes are located at altitudes between 15,000 and 60,000 feet.

10. (Original) The communications link of claim 9, wherein the respective first and second patterns of the first and second airplanes are located at an altitudes of approximately 30,000 feet.

11. (Original) The communications link of claim 1, wherein at least one of the first and second airplanes is for adjusting the first and second flight patterns, respectively, so that at least one of the first and second beam patterns is capable of circumventing a storm.

12. (Original) The communications link of claim 1, wherein the first airplane is for handing off calls to the second airplane when necessary to provide the continuous uninterrupted communications coverage.

13. (Amended) An airborne link for a cellular communications system, comprising:

a first airplane establishing a first light pattern for transmitting RF beams to provide communications coverage within a first beam footprint covering a specified geographic area;

a second airplane for replacing the first airplane at an end of a mission of the first airplane by establishing a second flight pattern and a second beam footprint that enables call switchover in a manner that minimizes dropped calls; wherein the first and second flight patterns are substantially parallel flight patterns and substantially 180° out-of-phase flight patterns.

14. (Original) The airborne link of claim 13, further comprising a ground control station for directing the call switchover when the second airplane establishes a call switchover rendezvous flight pattern.

15. (Original) The airborne link of claim 14, wherein the ground control station gradually switches over calls within the first beam footprint to the second beam footprint by gradually reducing output power associated with the first beam footprint to cause user handsets to switch to the second beam footprint.

16. (Original) The airborne link of claim 13, wherein the first airplane initiates the call switchover by gradually reducing output power associated with the first beam footprint to cause user handsets to switch to the second beam footprint.

17. (Cancelled)

18. (Original) A method of switching calls over from an original airplane-based communications link in a cellular communications system to a replacement airplane-based communications link, comprising:

maintaining a first airplane in a first flight pattern to provide continuous coverage over a designated geographic area through a first communications link;

flying a second airplane up to a predetermined flight pattern to establish a second communications link over the designated geographic area;

moving calls carried on the first communications link to the second communications link according to a predetermined switchover protocol; and

flying the first airplane out of the first flight pattern after all of the calls have been switched over to the second communications link.

19. (Original) The method of claim 18, wherein the moving of calls is a ground control-based operation.

20. (Original) The method of claim 18, wherein the moving of calls is a power control-based operation in which power of the first communications link is gradually reduced to enable calls on the first communications link to be gradually handed off to the second communications link.

21. (Original) The method of claim 18, wherein the moving of calls is a split spectral resources-based operation in which a percentage of spectral resources assigned to the second communications link is gradually increased until 100% of all spectral resources are assigned to the second communications link.

22. (Original) A method of providing cellular communications coverage using an airplane based antenna array, comprising:

establishing cellular communications coverage over a predetermined geographic area via a first generally circular flight pattern with an outer point thereof being tangential to a circumscribing flight pattern circle having a radius larger than that of the first flight pattern;

if a weather pattern affects the communications coverage, moving from the first flight pattern along the circumscribing flight pattern circle until a new operating point corresponding to a point of an alternate flight pattern that is tangential to the circumscribing flight pattern is reached; and

executing the alternate flight pattern having a radius similar to the first flight pattern to maintain the cellular communications coverage over the predetermined geographic area.

23. (Original) The method of claim 22, further comprising adjusting the cellular communications coverage during the moving from the first flight pattern to maintain the cellular communications coverage over the predetermined geographic area.

24. (Original) The method of claim 23, wherein the moving from the first flight pattern further comprises at least one of turning beams providing the cellular communications coverage on/off and re-shaping the beams providing the cellular communications coverage.

25. (Original) The method of claim 22, wherein the moving from the first flight pattern is an airplane-based function.

26. (Original) The method of claim 22, wherein the moving from the first flight pattern is a terrestrial-based function.